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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/085,507   | 02/26/2002  | John W. Orcutt       | TI-32675            | 8689             |
| 23494  | 7590        | 06/03/2004           | EXAMINER            |                  |
| TEXAS INSTRUMENTS INCORPORATED<br>P O BOX 655474, M/S 3999<br>DALLAS, TX 75265 |             |                      | PRITCHETT, JOSHUA L |                  |
|  |             | ART UNIT             |                     | PAPER NUMBER     |
|  |             |                      |                     | 2872             |

DATE MAILED: 06/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PA

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/085,507             | ORCUTT ET AL.       |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Joshua L Pritchett     | 2872                |  |

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-25 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 26 February 2002 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2-02.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

Claims 17-21 objected to because of the following informalities:

Regarding claim 17, claim 17 recites the limitation "the printed circuit board," there is no support for this limitation in the parent claim 16 or in claim 17.

Regarding claim 18, claim 18 recites "the sensor," there is no support for this limitation in the parent claim 16 or claim 18.

Regarding claims 19, claim 19 recites "at least one light source," parent claim 16 already has a claim limitation drawn to "a light source." Examiner will examine claim 19 as if the limitation stated "at least one second light source."

Regarding claim 20, claim 20 recites "a light source," parent claim 16 already has a claim limitation drawn to "a light source." Examiner will examine claim 20 as if the limitation stated "a second light source."

The remaining claims depend from claim 17 and inherit the deficiencies thereof.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-8, 15, 16, 18 and 23-25 rejected under 35 U.S.C. 102(b) as being anticipated by Iddan (US 5,408,253).

Regarding claims 1, 4-6, 11, 16, 17 and 25, Iddan discloses a data transmission system comprising a micromirror assembly for directing the directed light beam at the receiver (Fig. 1). The micromirror assembly comprising a mirror device having a frame (Fig. 1), a mirror surface (24) and a plurality of hinges (22); at least one actuation element (38) attached to the mirror device (Fig. 4); a mounting (12) having a recess (18 and 20), the mirror device coupled to the mounting in overlying relation to the recess to enable movement of the mirror surface (col. 2 lines 29-33); a plurality of drivers (42), in proximity to the at least one actuation element, for orienting the mirror surface (Fig. 4). Iddan includes an inherent light source to provide light beam (23) and a light source must inherently be connected to a data source. A data source in the broadest reasonable interpretation includes the material used to create the light beam. For example, a He-Ne laser would have helium and neon as the data source because the light created by these gases would carry a signature wavelength based on the material used to create the light beam, which is a form of data.

Regarding claims 3 and 23, Iddan discloses the mounting is a printed circuit board (Fig. 1).

Regarding claim 7, Iddan discloses wherein the actuating element (38) is a permanent magnet (col. 3 lines 28-30).

Art Unit: 2872.

Regarding claims 8 and 18, Iddan discloses the drivers are electromagnetic drives each having a coil and the micromirror assembly further comprises control circuitry, for applying a signal to the driver coils responsive to the orientation of the mirror (col. 3 lines 28-30).

Regarding claims 11 and 17, Iddan discloses a sensor (26), disposed beneath the mirror element and connected to the printed circuit board for detecting the orientation of the mirror (col. 2 lines 46-56).

Regarding claim 24, Iddan discloses the recess on the printed circuit board is formed by a spacer for spacing the mirror device from the printed circuit board, the spacing determining the maximum rotation of the mirror portion (col. 2 lines 29-33; Fig. 5).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 9 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iddan.

Regarding claims 2 and 22, Iddan teaches the invention as claimed but lacks reference to the mirror device formed of a single piece of crystalline material. Iddan teaches that the mirror device is single piece and may be a polished surface (col. 2 lines 41-44). It is extremely well

known in the art that polished metal surfaces can be used as mirrors. Official Notice is taken.

Metals are also known to have crystalline structure. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the polished surface of Iddan be a metal polished surface for the purpose of efficiently reflecting the light incident the mirror surface.

Regarding claim 9, Iddan teaches the invention as claimed but lacks reference to the use of electrostatic plates as the actuator and driver. It is extremely well known in the art to use electrostatic plates as the actuator and driver of a MEMS device. Official Notice is taken. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the mirror device actuated remotely by a driver.

Claims 10, 12, 13, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iddan in view of Kleytman (US 6,522,445).

Regarding claim 10, Iddan teaches the invention as claimed but lacks reference to a gimbals portion. Kleytman teaches the use of a gimbals portion (R) in a MEMS device. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Iddan invention include a gimbals portion as taught by Kleytman for the purpose of providing more freedom of motion of the mirror device.

Regarding claims 12-14 and 19-21, Iddan teaches the invention as claimed but lacks reference to the use of a light source in the sensor arrangement. Kleytman teaches at least one light source (12 and 9) for illuminating an underside of the mirror surface (Fig. 3) at least one detector (16A and 16B, 18A and 18B) coaxial with the mirror surface for detecting light

Art Unit: 2872

imparted by the at least one light source and reflected from the underside of the mirror surface (Fig. 3); wherein the combination of the at least one light source and the at least one detector provide a plurality of reflection paths over which the intensity of the reflected light is measured (Fig. 3). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Iddan sensor include the arrangement of Kleytman for the purpose of rapidly determining the orientation of the mirror.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L Pritchett whose telephone number is 571-272-2318. The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/085,507

Page 7

Art Unit: 2872

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*[Handwritten mark]*



DREW A. DUNN  
SUPERVISORY PATENT EXAMINER